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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/345,584	06/30/1999	GREG CONKLIN	REALNET.028A	1392

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KNOBBE MARTENS OLSON & BEAR LLP
620 NEWPORT CENTER DRIVE
SIXTEENTH FLOOR
NEWPORT BEACH, CA 92660

EXAMINER
SEALEY, LANCE W

ART UNIT	PAPER NUMBER
2671	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/345,584	Applicant(s) CONKLIN, GREG	
	Examiner Lance W. Sealey	Art Unit 2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Notice of Change in Art Unit

1. The Group and/or Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2671.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 9-10, 17-18, 23-25 and 37 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein et al. ("Pearlstein," U.S. Pat. No. 5,568,200) in view of Kieu et al. ("Kieu," U.S. Pat. No. 6,181,382).

4. Pearlstein, in disclosing a method and apparatus for improved video display of progressively refreshed coded video, also discloses, with respect to claims 1, 9, 17 and 24, a method of generating video frames, the method comprising the acts of :

- receiving first data representing a first video frame, the first data comprising a plurality of

elements in a memory in the computer system, each element relating to a group of pixels (col.6, ll.45-50; see also col.4, ll.15-20 and 42-46 and data storage medium **22**, FIG.2. Reference frame=composite of several frames=intermediate frame);

- receiving second data representing a second video frame, the second data comprising a plurality of elements in the memory of the computer system, each element relating to a group of pixels (col.6, ll.45-50); and
- generating third data representing at least one video frame based upon information from the first and/or second data (col.6, ll.50-51).

5. However, Pearlstein does not disclose filtering at least a portion of the generated third data by reducing visible discontinuity between adjacent elements in the generated third data; this is disclosed by the Kieu HDTV up converter in col.14, ll.50-57.

6. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Pearlstein method with the Kieu HDTV conversion. Such a modification to Pearlstein would enable the user to reduce motion discontinuity (Kieu, col.2, ll.62-64).

7. The other claims in this rejection will now be considered. Concerning claim 2, 10, 18 and 25, Pearlstein discloses elements which are macroblock quadrants having a plurality of rows and columns of pixels, each of the pixels having an associated intensity value (col.9, ll.35-43).

8. Regarding claim 23, Pearlstein discloses a system which generates video frames, the system comprising:

- a processor (video encoder/decoder transmission system **1**, FIG.2);
- memory (data storage medium **22**, FIG.2);
- a decoder running on said processor, said decoder outputting to said memory first digital data representing a first film frame, said decoder outputting to said memory second digital data representing a second film frame (transport decoder **28**, FIG.2);
- a frame generator (video source **10**, FIG.1) running on said processor, the frame generator inputting said first digital data and said second digital data, the frame generator outputting to said memory intermediate digital data representing an intermediate film frame based upon information within said first and second digital data, said intermediate digital data including identified groups of pixels (col.6, ll.45-50). Kieu discloses said frame generator reducing visible discontinuities near the perimeters of at least one of the groups of pixels included in said intermediate digital data (de-interlacer, FIG.2).

9. Finally, with respect to claim 37, Pearlstein discloses a system for generating video frames, the system comprising:

- a frame analysis module for receiving frames and a frame synthesis module for generating at least one frame between two received frames (video encoder/decoder transmission system, FIG.2).
- Kieu discloses the frame synthesis module filtering the generated frames (de-interlacer, FIG.2).

10. Therefore, in view of the foregoing, claims 1-2, 9-10, 17-18, 23-25 and 37 are rejected as being unpatentable under 35 U.S.C. 103(a) by Pearlstein and Kieu.

11. Claims 3, 11, 19 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein in view of Kieu and further in view of Baxes, Digital Image Processing: Principles and Applications.

12. With respect to all four claims, neither Pearlstein nor Kieu disclose filtering as comprising the steps of (i) selecting at least one pixel within a selected macroblock quadrant; (ii) determining the average of the pixel intensity of one or more proximately positioned pixels with respect to at least one pixel; and (iii) associating the determined average pixel intensity with the at least one pixel. Except for the macroblock, which is disclosed by Pearlstein, these filtering elements are disclosed by Baxes on pp.89-91.

13. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Pearlstein-Kieu method with the Baxes filtering method. Such a modification to Pearlstein-Kieu would provide a sharpened image (Baxes, p.91, second paragraph).

14. Accordingly, in view of the foregoing, claims 3, 11, 19 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein, Kieu and Baxes.

15. Claims 4-6, 12-14, 20-22, 27-29 and 32-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein in view of Kieu and Baxes and further in view of Krtolica (U.S. Pat. No. 5,974,177).

16. With respect to claims 4, 12, 20 and 27, neither Pearlstein, Kieu nor Baxes disclose performing filtering with respect to each of the pixels within the selected macroblock quadrant except the bottom-most row of pixels and the right-most column of pixels. However, this is disclosed by the Krtolica size filtering method at col.5, ll.25-54.

17. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Pearlstein-Kieu-Baxes method with the Krtolica filtering method. Such a modification would add to the Pearlstein-Kieu-Baxes system the capability to distinguish image from text (Krtolica, col.5, ll.25-54).

18. The other claims in this rejection will now be considered. Concerning claims 5, 13, 21, 28 and 33, Baxes discloses the proximately positioned pixels as including two bordering pixels, the first bordering pixel being positioned above the at least one pixel, the second bordering pixel being positioned below the at least one pixel (p.89, second full paragraph; there are pixels above and below any of the center pixels).

19. Regarding claims 6, 14, 22, 29 and 34, Baxes discloses the proximately positioned pixels as including two bordering pixels, the first bordering pixel being positioned to the right of the at least one middle pixel, the second bordering pixel being positioned to the left of the at least one middle pixel (p.89, second full paragraph; there are pixels to the right and to the left of any of the center pixels).

20. With respect to claim 32, Pearlstein discloses receiving first data representing a first video

frame, the first data comprising a plurality of elements in a memory in the computer system, each element relating to a group of pixels (col.6, ll.45-50; see also col.4, ll.15-20 and 42-46 and data storage medium **22**, FIG.2. Reference frame=composite of several frames=intermediate frame); receiving second data representing a second video frame, the second data comprising a plurality of elements in the memory of the computer system, each element relating to a group of pixels (col.6, ll.45-50); and generating third data representing at least one video frame based upon information from the first and/or second data (col.6, ll.50-51). Krtolica discloses determining a filter strength and selectively filtering pixels in each of the macroblock quadrants based upon the filter strength in col.5, ll.25-54. Baxes discloses (i) selecting at least one pixel within a selected macroblock quadrant; (ii) determining the average of the pixel intensity of one or more proximately positioned pixels with respect to at least one pixel; and (iii) associating the determined average pixel intensity with the at least one pixel on pp.89-91.

21. Accordingly, in view of the foregoing, claims 4-6, 12-14, 20-22, 27-29 and 32-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein, Kieu, Baxes and Krtolica.

22. Claims 7, 15 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein in view of Kieu and Krtolica.

23. Neither Pearlstein nor Kieu disclose determining a filter strength and selectively filtering pixels in each of the macroblock quadrants based upon the filter strength. But Krtolica discloses

these elements in col.5, ll.25-54.

24. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Pearlstein-Kieu method with the Krtolica filtering method. Such a modification would add to the Pearlstein-Kieu system the capability to distinguish image from text (Krtolica, col.5, ll.25-54).

25. Accordingly, claims 7, 15 and 30 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein, Kieu, and Krtolica.

26. Claims 8, 16 and 31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein in view of Kieu and Krtolica and further in view of Margulis (U.S. Pat. No. 6,157,396).

27. Neither Pearlstein, Kieu nor Krtolica disclose determination of filter strength on a macroblock quadrant by macroblock quadrant basis, wherein the filter strength is based at least in part on a motion vector that is associated with the respective macroblock quadrant. However, this element is disclosed by the Margulis filter method at col.9, ll.6-17.

28. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Pearlstein-Kieu-Krtolica method with the Margulis filtering method. Such a modification would aid in creating a sharper image (Margulis, col.9, ll.14-17).

29. Claim 35 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein in view of Kieu, Krtolica, Baxes and further in view of Margulis.

30. Neither Pearlstein, Kieu, Krtolica nor Baxes disclose determination of filter strength on a macroblock quadrant by macroblock quadrant basis, wherein the filter strength is based at least in

part on a motion vector that is associated with the respective macroblock quadrant. However, this element is disclosed by the Margulis filter method at col.9, ll.6-17.

31. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Pearlstein-Kieu-Krtolica method with the Margulis filtering method. Such a modification would aid in creating a sharper image (Margulis, col.9, ll.14-17).

32. Accordingly, claim 35 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Pearlstein, Kieu, Krtolica, Baxes and Margulis.

33. Claim 36 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Poynton, A Technical Introduction to Digital Video, in view of Kieu.

34. With respect to claim 36, Poynton discloses a method of generating frames, the method comprising receiving a first frame having a set of elements, the elements collectively defining a digital image, and generating a second frame using the set of elements from the first frame, the second frame representative of the first frame at a point in time either before or after the first frame ("In cameras and displays, some time is required to advance the scanning operation--to *retrace*--from one line to the next and from one frame to the next.", Raster Scanning section, p.8), the second frame representing at least one of the elements at a position different from the position at which it was represented by the first frame (implied by the discussion of *twitter*, second full paragraph, p.11).

35. However, Poynton does not disclose filtering the second frame to reduce visible

discontinuities; this is disclosed by the Kieu HDTV up converter in col.14, ll.50-57.

36. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the Poynton method with the Kieu HDTV conversion. Such a modification to Poynton would enable the user to reduce motion discontinuity (Kieu, col.2, ll.62-64).

37. Accordingly, claim 36 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Poynton and Kieu.

Claim Rejections - 35 USC § 112

38. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

39. With respect to claims 5-6, 13-14, 21-22, 28-29 and 33-34, the term "proximately positioned pixels" lacks antecedent basis because there is no reference in claims 4, 12, 20, 27 or 32, respectively, that defines this term. Appropriate correction is required.

Conclusion

Any inquiry concerning this communication or earlier communications from the Office should be directed to the examiner, Lance Sealey, whose telephone number is (703) 305-0026. He can be reached from 7:00 am-3:30 pm Monday-Friday EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office at (703) 306-0377.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600